CHARLES G. BOERNER.

We regret to have to announce the death of one of our most esteemed voluntary observers, Mr. Charles G. Boerner, at Vevay, Ind., in the seventy-third year of his age.

In the summer of 1867 the Editor began the organization of a system of meteorological stations in connection with the work of the astronomical observatory at Cincinnati, Ohio, and at this time received a visit from Mr. Charles G. Boerner, of Vevay, Ind., who was already known to him as a skillful horologist and a faithful meteorological observer. We learn that Mr. Boerner was born in the village of Artern, in Prussian Saxony, on April 14, 1827. His father, Charles G. Boerner, was a graduate of the University of Halle, and a watch manufacturer at Artern. The son, Charles, Jr., graduated at Erfurt, became an expert watchmaker, and was for a year assistant at Dresden Observatory. In 1847 he came, with his parents, to Detroit, Mich., but in 1849 settled in Cincinnati, and in 1864 moved to Vevay and went into business with his brother.

Mr. Boerner was a Fellow of the American Association for the Advancement of Science, and an active member of the Cincinnati Society of Natural History. He began his system of meteorological observations for the Smithsonian Institution in November, 1864, and continued them as a voluntary observer of the Weather Bureau. With the assistance of the members of his family this record has been continuous up to the present time, and his daughter, Miss Frederica Boerner, will maintain it for the future. His work has always been distinguished for extreme neatness and accuracy, and the numerous special observations and notes recorded by him show a wide appreciation of many aspects of meteorology. His complete record for thirty-five years in one location has made Vevay one of the climatological centers of the United States. His library and geological collections show fine taste and broad intellectual sympathies. Mr. Boerner was married in 1853 and leaves a wife and five children. He enjoyed the highest esteem of every member of the community. He was active in every good work and his place will not easily be filled.

ARTIFICIAL RAIN.

The question perpetually arises in the popular mind as to whether man can not produce rain or drought according as his needs may dictate. The possibility of doing this is never questioned by barbarians, who have their professional rain makers and great medicine men, and superstitiously attribute to them all power over nature. In some parts of the Christian world it has been believed that man could bring about rain or drought, not by his own power, but by intercession with the Creator, who would, perhaps, work a miracle on his behalf. During the past thousand years miracles have been confessedly rare, and some consider it almost impious for man to dare to interfere with the operations of nature on a large scale; some even refuse to be doctored for disease.

The recognition of the truths revealed by modern science has made it evident that man can affect the weather only by understanding and making use of the laws of nature. He must do it in a natural or scientific way, not through any supernatural power or in any miraculous way. In fact, those who have a very imperfect knowledge of the laws of nature, if any at all, are often inclined to believe that there really must be some process known to science, or still to be discovered, by which man can bring abundant rain from the clouds when and where he needs it. They point to the popular belief that rain follows great battles, as proving that there is some way by which to affect the clouds—it may be through the noise of the battle, or it may be the burning of the gunpowder, or it may be a possible electric disturbance. They point to the reputed influence of lightning rods, which are supposed to draw the lightning from the skies and prevent the formation of hail.

In these and other matters there is abundant room for self-deception. It would be a great mistake to conclude that any battle by reason of its noise, or heat, or gunpowder has had any effect in the way of producing rain, or that the lightning rods have had any effect in producing or preventing hail. The statistics that are supposed to substantiate such conclusions do not really prove anything of the kind, and yet many are deceived by them because in reasoning upon the phenomena of nature they forget to apply the simplest laws of logic, and are carried away by emotions or preconceived opinions or the plausible suggestions of others. This is not at all singular, for the history of man's progress in knowledge is the history of a long series of mistakes covering thousands and tens of thousands of years. All have to learn by bitter experience, and if science seems to have made rapid progress during the past century, that should not blind our eyes to the fact that errors may still prevail among the professional scientists as well as the rest of mankind.

In the special matter of the artificial formation of rain we heartily indorse the statement that if it is in any way possible to bring this about we must labor to discover it; in fact, we eventually shall discover the way, if there be one, but thus far nothing has been accomplished to justify us in believing that feasible methods exist or are likely to exist. Various methods have had their advocates both in Europe and America, and the citizens of the United States, with a nervous energy that is greatly to be admired, have given a full and fair trial, at great expense, to several methods advocated by men of imperious natures that would brook no denial short of nature's own experimental demonstration of their errors. Thus the rain-making by explosives was most thoroughly tested by order of Congress at an expense to the public of many thousands of dollars, and the results have been discussed sufficiently, both in public and private, to show that nothing in the way of rain, and probably nothing in the way of cloud or mist was produced. One of the first experimental trials was made quite near Washington, D. C., at nighttime November 2–3, 1892, when a series of clouds with showers were passing over the neighboring country, and these continued right along for several hours quite independent of the bombardment. The reports from numerous observers showed that as the showers moved along over the earth's surface those in front of it reported that the noise of the exploding dynamite occurred just before the shower; those in the wake of the shower reported that the shower came before the explosion, while those in the midst of the shower, of course, heard the explosion while it was raining. There was no evidence that the explosion had any effect on the clouds. The present writer took careful observations in Washington, D. C., during the whole of this first experiment, and has also studied the subsequent experiments with explosives sufficiently to feel warranted in saying that no rainfall was produced by bombardment.

About that time we began to hear of a "famous Australian method of producing rain practised by Frank Melbourne in Australia," who was said to have recently returned home to Ohio and was experimenting in that State. Beginning at Canton, Ohio, on May 7, 1891, he subsequently went to Cheyenne, Wyo., Kelton, Utah, and was at Goodland, Kans., in October, 1891. He was known as the "rain wizard." His method consisted in locking himself in a barn, house, freight car, or other room wherein he made a fire and burned or evaporated certain chemicals, whose smoke rose through the roof out of some impromptu chimney or stove pipe and dissipated